IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re United States Patent Application of:		**Docket No.:**	**4240-147**
Applicants:	**SUNG, Moon-Hee, et al.**	**Conf. No.:**	**5092**
Application No.:	**10/588,359**	**Art Unit:**	**1648**
Date Filed:	**August 3, 2006**	**Examiner:**	**Benjamin P. Blumel**
Title:	**CELL SURFACE EXPRESSION VECTOR OF PARVOVIRUS ANTIGEN AND MICROORGANISMS TRANSFORMED THEREOF**	**Customer No.:**	**23448**

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I hereby certify that this document is being filed via EFS in the United States Patent and Trademark Office on **April 25, 2008**.
/Steven J. Hultquist/

RESPONSE TO MARCH 28, 2008 RESTRICTION REQUIREMENT IN U.S. PATENT APPLICATION NO. 10/588,359

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
Sir:

This responds to the March 28, 2008 Office Action in the above-identified application. The time for responding to the March 28, 2008 Office Action without extension was set at one month, or April 28, 2008. This response is therefore timely.

In the March 28, 2008 Office Action, the Examiner has identified more than one species of the generic invention, alleging that the species do not possess unity of invention, as defined under

PCT Rule 13.1. Accordingly, the examiner has required election of species in each of the following groups:

Group A: a specific pgs gene in claim 1;

Group B: a specific vector in claim 2;

Group C: a specific bacteria in claims 4 and 5;

Group D: a specific expressed form of antigen in claims 8, 14, 15 and 18-20;

Group E: a specific mode of administering the claimed vaccine in claims 9-11 and 16.

In response, applicants elect, with traverse, the following species:

pgsA as a specific pgs gene of Group A;

pHCE2LB:pgsA:VP2 as a specific vector of Group B;

lactic acid bacteria as a specific bacteria of Group C;

antigen expressed on the surface of the microorganism as a specific expressed form of antigen of Group D; and

oral administration as a specific mode of administering the claimed vaccine of Group E.

Traversal of Species Election Requirement

The above elections of species are made by applicants **with traverse**. The examiner's attention is respectfully directed to MPEP § 1850, PCT Rule 13.2, as the basis for applicants' traversal:

> "[w]here a group of inventions is claimed in one and the same international application, the requirement of unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression 'special technical features' shall mean those **technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art**." (emphasis added)

Applying this requirement of Rule 13.2 to the present circumstance, there exist common special technical features that define the contribution which each of the claimed species of groups A-E makes over the prior art. The five categories of species identified in the Requirement for Election mailed March 28, 2008 therefore possess unity of invention.

Specifically, all species of the group identified as pgs genes are genes that encode a poly-gamma-glutamate synthetase complex. These genes are identified in claim 1 as pgsB, pgsC and pgsA. All of the claimed genes are related in that they encode proteins involved in the synthesis of poly-gamma-glutamate and all are related, as effecting synthesis of poly-gamma-glutamate.

All species of pHCE2LB:pgsA:CVP2-1, pHCE2LB:pgsA:VP2-2 and pHCE2LB:pgsA:VP2 are vectors recited in claim 2. The recited recombinant surface expression vectors are related in design in that all are derived from the same starting vector and all contain pgsA and a gene encoding a parvovirus capsid antigen protein. The recombinant vectors all express the transformed genes, resulting in expression of the parvovirus capsid antigen protein (VP2-1, VP2-2 or VP2) on the surface of the host cells.

In group C, the group of microorganisms is the group recited in claim 4, all of which exhibit no toxicity upon application to a living body, or any attenuated microorganism. A member of the group of microorganisms recited in claim 4 may be gram positive (examples in the specification and claims include *Bacillus,* lactic acid bacteria, *Lactobacillus, Lactococcus, Staphylococcus, Listeria monocytogenes* and *Streptococcus*) or gram negative (examples in the specification and claims include *E. coli, Salmonella typhi, Salmonella typhimurium, Vibrio cholerae, Mycobacterium bovis,* and *Shigella*) and will not show toxicity upon application. This common characteristic is detailed in the specification at page 6, line 29 to page 7, line 5. Thus, in group C the common special technical feature among the listed species is that all of the microorganisms do not show toxicity upon application to a living body, or any attenuated microorganism.

All species of the group identified as a specific expressed form of antigen are selected from VP2-1, VP2-2 and VP2. All of these possess the common special technical feature of being parvovirus capsid antigen proteins.

Finally, the examiner has identified the group of specific modes of administering the claimed vaccine. All species of the group identified as modes of administering vaccines are methods of introducing the vaccine to the body. Specifically, such methods are oral administration and ingestion in food (claims 9 and 16), hypodermic injection and celiac injection (claim 10) and rhinal administration (claim 11). All such administration methods possess the common special technical feature of providing the vaccine to the living system.